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ABSTRACT

This guide to Indiana's academic standards in language arts, mathematics, science, and the social studies for Grade 1 students begins with a note to students and another note to parents. The guide spells out what students should know and be able to do in each subject, at each grade level. The guide also lists 10 things parents can do to help students succeed and includes information on assessments or measures of student learning. The section in the guide on English/Language Arts cites the following standards: (1) Reading: Word Recognition, Fluency, and Vocabulary Development; (2) Reading: Comprehension; (3) Reading: Literary Response and Analysis; (4) Writing: Process; (5) Writing: Applications (Different Types of Writing and Their Characteristics); (6) Writing: English Language Conventions; and (7) Listening and Speaking: Skills, Strategies, and Applications. The Mathematics section lists these six standards: Number Sense, Computation, Algebra and Functions, Geometry, Measurement, and Problem Solving. The Science section enumerates these six standards: Nature of Science and Technology, Scientific Thinking, Physical Setting, Living Environment, Mathematical World, and Common Themes. The Social Studies section lists these five standards: History; Civics and Government; Geography; Economics; and Individuals, Society, and Culture. (NKA)

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ED 477 620

Grade 1

Indiana's Academic Standards

English/Language Arts
Mathematics
Science
Social Studies

Adopted by the
Indiana State
Board of Education
2000 – 2001

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Grade 1

English/Language Arts

CS 512 257

Dear Student,

The world is changing fast. In order for you to succeed in school, at work, and in the community, you will need more skills and knowledge than ever before.

Getting in shape academically is the single most important thing you can do to prepare for a successful future.

This booklet of Academic Standards clearly spells out what you should know and be able to do in each subject, at your grade level. Examples are given to help you understand what is required to meet the standards. **Please review this guide with your teachers and share it with your parents and family.**

Whether you go on to be a surgeon, computer technician, teacher, or airplane mechanic, learning never stops. There will always be a more demanding computer application, a new invention, or a more complex project awaiting you.

To be ready for tomorrow — get in top academic shape today. Use this guide year round to check your progress.

Dear Parent,

The demand is greater than ever for people who can read, write, speak effectively, analyze problems and set priorities, learn new things quickly, take initiative, and work in teams. Technology has already transported us into a time where the next e-commerce opportunity is limited only by our imagination.

That's why Indiana has established new Academic Standards in English/language arts, mathematics, science, and social studies. These world-class Standards outline what your student should know and be able to do in each subject, at each grade level.

Indiana's new Academic Standards were recommended by Indiana's Education Roundtable and adopted by the State Board of Education. According to Achieve, Inc. and other respected education experts, these Standards are among the best in the nation.

Higher academic standards pose a challenge, but Indiana students have shown that they can measure up. Our students know that higher expectations lead to greater rewards — and they're prepared to work harder. We know that by setting specific goals, everyone wins. Teachers have clear targets, students know what's expected, and you have detailed information about your child's strengths and weaknesses.

How can you be sure that your student will be ready to meet these challenges? First, keep in mind that learning does not take place only in the classroom. Students spend far more time at home than they do in school. How they spend their time can make a real difference. That is where your help is the most important.

On the next page is a list of 10 things you can do to help your student get a good education. **Nothing will have a bigger impact on your student's success than your involvement in his or her education.** We hope you use this guide as a tool to help your child succeed today and in the future.

Sincerely,

Frank O'Bannon
Governor Frank O'Bannon

Dr. Suellen Reed
Dr. Suellen Reed,
Superintendent of Public Instruction

Stan Jones
Stan Jones,
Commissioner for Higher Education

10 things parents can do to help students succeed

1. **Build relationships with your child's teachers.** Find out what each teacher expects of your child and how you can help your child prepare to meet those expectations.

2. **Read.** Reading is the foundation for all learning. Read to your young child, encourage your older child to read to you, or spend time together as a family reading. All this helps your child develop strong reading habits and skills from the beginning and reinforces these habits and skills as your child grows. Reading is one of the most important contributions you can make to your child's education.

3. **Practice writing at home.** Letters, journal entries, e-mail messages, and grocery lists are all writing opportunities. Show that writing is an effective form of communication and that you write for a variety of purposes.

4. **Make math part of everyday life.** Cooking, gardening, paying bills, and even shopping are all good ways to help your child understand and use mathematics skills. Show that there may be many ways to get to the right answer and encourage your child to explain his or her method.

5. **Ask your child to explain his or her thinking.** Ask lots of "why" questions. Children should be able to explain their reasoning, how they came up with the right answer, and why they chose one answer over another.

6. **Expect that homework will be done.** Keep track of your child's homework assignments and regularly look at his or her completed work. Some teachers now give parents a number to call for a recorded message of that day's homework assignments; others put the information on the Internet. If your school doesn't offer these features, talk to the teacher about how you can get this important information. Even if there aren't specific assignments, find out how you can stay informed about what your child is working on so that you can help at home.

7. **Use the community as a classroom.** Feed your child's curiosity about the world 365 days a year. Use the library to learn more about the history of your town. A visit to a farmer's market can help your child picture our state's rich agricultural tradition. Take your young child to zoos and parks and your older child to museums and workplaces to show how learning connects to the real world.

8. **Encourage group study.** Open your home to your child's friends for informal study sessions. Promote outside formal study groups through church or school organizations or other groups. Study groups will be especially important as your child becomes older and more independent. The study habits your child learns now will carry over into college and beyond.

9. **Help other parents understand academic expectations.** Use your school and employee newsletters, athletic associations, booster clubs, a PTA or PTO meeting, or just a casual conversation to help other parents understand what academic standards mean for them, their children, and their school and how they can help their children learn at home.

10. **Spend time at school.** The best way to know what goes on in your child's school is to spend time there. If you're a working parent, this isn't easy, and you may not be able to do it very often. But "once in awhile" is better than "never."

Remember: *You are the most important influence on your child. Indiana's Academic Standards give you an important tool to ensure that your child gets the best education possible.*

Measuring Student Learning

Children develop at different rates. Some take longer and need more help to learn certain skills. Assessments, like ISTEP+, help teachers understand how students are progressing and assist in identifying academic areas where students may need additional attention.

Assessments also provide a measure of school accountability – assisting schools in their efforts to align curriculum and instruction with the state's Academic Standards and reporting progress to parents and the public. Students in designated grades take ISTEP+ in the fall of each school year – with the assessment based on what the child should have learned and retained from the previous year.

Core 40 End-of-Course Assessments are given at the end of specific high school classes and are a cumulative assessment of what students should have learned during that course. End-of-Course Assessments also provide a means to ensure the quality and rigor of high school courses across the state. Voluntary for schools at this time, a selection of these assessments will be phased in over the next five years.

◗ Indicates mandatory ISTEP+ testing ♦ Indicates voluntary assessments

Kindergarten

Grade 1
♦Reading

Grade 2
♦Reading

Grade 3
◗ English/Lang. Arts
◗ Mathematics

Grade 4

What's the Goal? By Grade 4, have students moved beyond learning to read toward "reading to learn" other subjects? Can each student write a short, organized essay? Can each student use math skills to solve everyday, real-world problems?

Grade 5
◗ Science (begins 2003)
◗ Social Studies (begins 2004)

Grade 6
◗ English/Lang. Arts
◗ Mathematics

Grade 7
◗ Science (begins 2005)
◗ Social Studies (begins 2006)

Grade 8
◗ English/Lang. Arts
◗ Mathematics

What's the Goal? By Grades 7 and 8, have students developed strong enough study habits in English and math skills to be ready for high school?

Grade 9
◗ Science (begins 2007)
◗ Social Studies (begins 2008)
♦Core 40 End-of-Course Assessments

Grade 10 (GQE)
◗ English/Lang. Arts
◗ Mathematics
♦Core 40 End-of-Course Assessments

Grade 11
(two re-tests available for those who have not passed the GQE)
♦Core 40 End-of-Course Assessments

Grade 12
(two re-tests available for those who have not passed the GQE)
♦Core 40 End-of-Course Assessments

Graduation
(or continued extra help)

What's the Goal?
By Grade 12, can students read well enough to pass a driver's exam, understand an appliance manual, or compare two opposing newspaper editorials? Could students write an effective job application letter? By testing skills like these in Grade 10, teachers know whether – and in which skill area – students need more attention before it's time to graduate.

For more information visit www.doe.state.in.us/standards and click on Assessment or call 1-800-54-ISTEP (1-888-544-7837).

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Standard 1

READING: Word Recognition, Fluency, and Vocabulary Development

Students understand the basic features of words. They see letter patterns and know how to translate them into spoken language by using phonics (an understanding of the different letters that make different sounds), syllables, and word parts (-s, -ed, -ing). They apply this knowledge to achieve fluent (smooth and clear) oral and silent reading.

Concepts About Print

1.1.1 Match oral words to printed words.

1.1.2 Identify letters, words, and sentences.

1.1.3 Recognize that sentences start with capital letters and end with punctuation, such as periods, question marks, and exclamation points.

Phonemic Awareness

1.1.4 Distinguish beginning, middle, and ending sounds in single-syllable words (words with only one vowel sound).

Example: Tell the sound that comes at the beginning of the word *sun*. Tell the sound that comes at the end of the word *cloud*. Tell the sound that comes in the middle of the word *boat*.

1.1.5 Recognize different vowel sounds in orally stated single-syllable words.

Example: Say the sound that is in the middle of the word *bit*. Say the sound that is in the middle of the word *bite*. Tell whether this is the same sound or a different sound.

1.1.6 Recognize that vowels' sounds can be represented by different letters.

1.1.7 Create and state a series of rhyming words.

1.1.8 Add, delete, or change sounds to change words.

Example: Tell what letter you would have to change to make the word *cow* into the word *how*. Tell what letter you would have to change to make the word *pan* into *an*.

1.1.9 Blend two to four phonemes (sounds) into recognizable words.

Example: Tell what word is made by the sounds /b/ /a/ /t/. Tell what word is made by the sounds /f/ /a/ /t/.

Decoding and Word Recognition

1.1.10 Generate the sounds from all the letters and from a variety of letter patterns, including consonant blends and long- and short-vowel patterns (*a, e, i, o, u*), and blend those sounds into recognizable words.

1.1.11 Read common sight words (words that are often seen and heard).

1.1.12 Use phonic and context clues as self-correction strategies when reading.

1.1.13 Read words by using knowledge of vowel digraphs (two vowels that make one sound such as the *ea* in *eat*) and knowledge of how vowel sounds change when followed by the letter *r* (such as the *ea* in the word *ear*).

Example: Correctly read aloud the vowel sounds made in words, such as *ear, eat, near, their,* or *wear*.

1.1.14 Read common word patterns (*-ite, -ate*).

Example: Read words, such as *gate, late,* and *kite*.

1.1.15 Read aloud smoothly and easily in familiar text.

Vocabulary and Concept Development

1.1.16 Read and understand simple compound words (*birthday, anything*) and contractions (*isn't, aren't, can't, won't*).

1.1.17 Read and understand root words (*look*) and their inflectional forms (*looks, looked, looking*).

Example: Recognize that the *s* added to the end of chair makes it mean more than one chair. Recognize that adding *ed* to the end of *jump* makes it mean jumping that happened in the past.

1.1.18 Classify categories of words.

Example: Tell which of the following are fruits and which are vegetables: *bananas, oranges, apples, carrots,* and *peas*.

Standard 2

READING: Comprehension

Students read and understand grade-level-appropriate material. They use a variety of comprehension strategies, such as asking and responding to essential questions, making predictions, and comparing information from several sources, to understand what they read. The selections in the **Indiana Reading List** *(available online at www.doe.state.in.us/standards/readinglist.html) illustrate the quality and complexity of the materials to be read by students. In addition to their regular school reading, at Grade 1, students begin to read a variety of grade-level-appropriate narrative (story) and expository (informational) texts (such as grade-level-appropriate classic and contemporary literature, nursery rhymes, alphabet books, children's magazines, dictionaries, and online information).*

Structural Features of Informational and Technical Materials

1.2.1 Identify the title, author, illustrator, and table of contents of a reading selection.

1.2.2 Identify text that uses sequence or other logical order.

Example: Explain how an informational text is different from a story. Tell what might be included in an informational book that uses sequence, such as a book on making a bird feeder like *The Bird Table* by Pauline Cartwright.

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Comprehension and Analysis of Grade-Level-Appropriate Text

1.2.3 Respond to *who, what, when, where, why,* and *how* questions and discuss the main idea of what is read.

Example: Read a story, such as *Frog and Toad Together* by Arnold Lobel or *There's an Alligator Under My Bed* by Mercer Mayer, and tell about the story, including the main idea, important events (what, when, why, how), setting (where), and characters (who).

1.2.4 Follow one-step written instructions.

1.2.5 Use context (the meaning of the surrounding text) to understand word and sentence meanings.

1.2.6 Confirm predictions about what will happen next in a text by identifying key words.

Example: Read part of a story, such as *The Musicians of Bremen: A Tale from Germany* by Jane Yolen, and tell what might happen next and how the story might end. Read part of an informational text, such as *The Carrot Seed* by Ruth Krauss, and guess what might happen next. Then, check to see if these predictions are correct by looking ahead in the text.

1.2.7 Relate prior knowledge to what is read.

Example: Read a text or story, such as *My Sister Is My Friend* by Hannah Markley, and tell about a time an older person helped you do something, the way the character in Markley's story is helped by her older sister.

Standard 3

READING: Literary Response and Analysis

Students read and respond to a wide variety of children's literature. They identify and discuss the characters, theme (the main idea of a story), plot (what happens in a story), and the setting (where a story takes place) of stories that they read. The selections in the Indiana Reading List *(available online at www.doe.state.in.us/standards/readinglist.html) illustrate the quality and complexity of the materials to be read by students.*

Narrative Analysis of Grade-Level-Appropriate Text

1.3.1 Identify and describe the plot, setting, and character(s) in a story. Retell a story's beginning, middle, and ending.

Example: Read a story, such as *Arthur's Prize Reader* by Lillian Hoban. Retell the story, including descriptions of the characters and plot of the story, by telling about what happens to Arthur in the contest that he enters and the one that he helps his sister to enter. Plot the story onto a story map.

1.3.2 Describe the roles of authors and illustrators.

Example: Read a book, such as *The Very Hungry Caterpillar* by Eric Carle or *Where the Wild Things Are* by Maurice Sendak, in which the art is especially important in telling the story. Describe the role of the author and illustrator, and discuss how the pictures help to tell the story.

Standard 4

WRITING: Process

Students discuss ideas for group stories and other writing. Students write clear sentences and paragraphs that develop a central idea. Students progress through the stages of the writing process, including prewriting, drafting, revising, and editing multiple drafts.

Organization and Focus

1.4.1 Discuss ideas and select a focus for group stories or other writing.

1.4.2 Use various organizational strategies to plan writing.

Evaluation and Revision

1.4.3 Revise writing for others to read.

Standard 5

WRITING: Applications

(Different Types of Writing and Their Characteristics)

At Grade 1, students begin to write compositions that describe and explain familiar objects, events, and experiences. Students use their understanding of the sounds of words to write simple rhymes. Student writing demonstrates a command of Standard English and the drafting, research, and organizational strategies outlined in Standard 4 — Writing Process. Writing demonstrates an awareness of the audience (intended reader) and purpose for writing.

Using the writing strategies of Grade 1 outlined in Standard 4 — Writing Process, students:

1.5.1 Write brief narratives (stories) describing an experience.

Example: Write a short story titled *My Friend* describing an experience that is real or imagined.

1.5.2 Write brief expository (informational) descriptions of a real object, person, place, or event, using sensory details.

Example: Write a description of a family member, a pet, or a favorite toy. Include enough details that the reader can picture the person, animal, or object.

1.5.3 Write simple rhymes.

1.5.4 Use descriptive words when writing.

Example: Use varied words to describe events, people, and places, such as describing a day as a *sunny day* or *cloudy day*.

1.5.5 Write for different purposes and to a specific audience or person.

Example: Write a thank-you note to the store manager after a field trip to the local supermarket.

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Standard 6

WRITING: English Language Conventions

Students write using Standard English conventions appropriate to this grade level.

Handwriting

1.6.1 Print legibly and space letters, words, and sentences appropriately.

Sentence Structure

1.6.2 Write in complete sentences.

Grammar

1.6.3 Identify and correctly use singular and plural nouns (*dog/dogs*).

1.6.4 Identify and correctly write contractions (*isn't, aren't, can't*).

1.6.5 Identify and correctly write possessive nouns (*cat's meow, girls' dresses*) and possessive pronouns (*my/mine, his/hers*).

Punctuation

1.6.6 Correctly use periods (*I am five.*), exclamation points (*Help!*), and question marks (*How old are you?*) at the end of sentences.

Capitalization

1.6.7 Capitalize the first word of a sentence, names of people, and the pronoun *I*.

Spelling

1.6.8 Spell correctly three- and four-letter words (*can, will*) and grade-level-appropriate sight words (*red, fish*).

Standard 7

LISTENING AND SPEAKING: Skills, Strategies, and Applications

Students listen critically and respond appropriately to oral communication. They speak in a manner that guides the listener to understand important ideas by using proper phrasing, pitch, and modulation (raising and lowering voice). Students deliver brief oral presentations about familiar experiences or interests that are organized around a coherent thesis statement (a statement of topic). Students use the same Standard English conventions for oral speech that they use in their writing.

Comprehension

1.7.1 Listen attentively.

1.7.2 Ask questions for clarification and understanding.

1.7.3 Give, restate, and follow simple two-step directions.

Organization and Delivery of Oral Communication

1.7.4 Stay on the topic when speaking.

1.7.5 Use descriptive words when speaking about people, places, things, and events.

Speaking Applications

1.7.6 Recite poems, rhymes, songs, and stories.

1.7.7 Retell stories using basic story grammar and relating the sequence of story events by answering *who, what, when, where, why,* and *how* questions.

1.7.8 Relate an important life event or personal experience in a simple sequence.

1.7.9 Provide descriptions with careful attention to sensory detail.

1.7.10 Use visual aids, such as pictures and objects, to present oral information.

NOTES

Grade 1

Mathematics

Mathematics

In this technological age, mathematics is more important than ever. When students leave school, they are more and more likely to use mathematics in their work and everyday lives — operating computer equipment, planning timelines and schedules, reading and interpreting data, comparing prices, managing personal finances, and completing other problem-solving tasks. What they learn in mathematics and how they learn it will provide an excellent preparation for a challenging and ever-changing future.

The state of Indiana has established the following mathematics Standards to make clear to teachers, students, and parents what knowledge, understanding, and skills students should acquire in Grade 1:

Standard 1 — Number Sense

Understanding the number system is the basis of mathematics. Students develop this understanding by first counting sets of objects and then moving on to writing numbers in figures. They learn how we group numbers in tens and ones, allowing them to write numbers up to 100. They find the number one more or one less than a given number. They put numbers up to 10 in order of size and use the terms *first*, *second*, *third*, etc. Students also learn about fractions, understanding that fractions compare a part of a set to the whole set.

Standard 2 — Computation

Fluency in computation is essential. As students learn about the whole numbers up to 100, they also learn how to add and subtract them. They use objects to join sets together (for addition) and to remove objects from sets (for subtraction). They become familiar with different ways of looking at the same number using objects and figures. They also learn that addition and subtraction are opposites of each other and that zero has special properties.

Standard 3 — Algebra and Functions

Algebra is a language of patterns, rules, and symbols. Students at this level relate word problems to number sentences in symbols, such as $7 + 6 = 13$, and learn some of the rules relating addition and subtraction. They also continue number patterns using addition.

Standard 4 — Geometry

Students learn about geometric shapes and develop a sense of space. They describe and draw simple shapes, comparing and sorting them by such attributes as size and number of sides. They learn the meaning of words, like *near* and *behind*, that relate to positions in space and use them to give and follow directions. They identify objects as two- or three-dimensional and describe the faces of solid objects. They also recognize geometric shapes in the world around them.

Standard 5 — Measurement

The study of measurement is essential because of its uses in many aspects of everyday life. Students begin their study of measurement by comparing objects' length, weight, temperature, etc. Then they become more precise and find, for example, that the length of their desk is 8 pencil-lengths. From this, they move toward understanding the need for standard units of length: inch, foot, yard, centimeter, and meter. They learn how to tell the time on a clock to the nearest half hour. They also learn about money: the values of pennies, nickels, and dimes.

Standard 6 — Problem Solving

In a general sense, mathematics is problem solving. In all mathematics, students use problem-solving skills: they choose how to approach a problem, they explain their reasoning, and they check their results. As they develop their skills with numbers, geometry, or measurement, for example, students at this level move from simple ideas to more complex ones by taking logical steps that build a better understanding of mathematics.

As part of their instruction and assessment, students should also develop the following learning skills by Grade 12 that are woven throughout the mathematics Standards:

Communication

The ability to read, write, listen, ask questions, think, and communicate about math will develop and deepen students' understanding of mathematical concepts. Students should read text, data, tables, and graphs with comprehension and understanding. Their writing should be detailed and coherent, and they should use correct mathematical vocabulary. Students should write to explain answers, justify mathematical reasoning, and describe problem-solving strategies.

Reasoning and Proof

Mathematics is developed by using known ideas and concepts to develop others. Repeated addition becomes multiplication. Multiplication of numbers less than ten can be extended to numbers less than one hundred and then to the entire number system. Knowing how to find the area of a right triangle extends to all right triangles. Extending patterns, finding even numbers, developing formulas, and proving the Pythagorean Theorem are all examples of mathematical reasoning. Students should learn to observe, generalize, make assumptions from known information, and test their assumptions.

Representation

The language of mathematics is expressed in words, symbols, formulas, equations, graphs, and data displays. The concept of one-fourth may be described as a quarter, ¼, one divided by four, 0.25, ⅛ + ⅛, 25 percent, or an appropriately shaded portion of a pie graph. Higher-level mathematics involves the use of more powerful representations: exponents, logarithms, π, unknowns, statistical representation, algebraic and geometric expressions. Mathematical operations are expressed as representations: +, =, divide, square. Representations are dynamic tools for solving problems and communicating and expressing mathematical ideas and concepts.

Connections

Connecting mathematical concepts includes linking new ideas to related ideas learned previously, helping students to see mathematics as a unified body of knowledge whose concepts build upon each other. Major emphasis should be given to ideas and concepts across mathematical content areas that help students see that mathematics is a web of closely connected ideas (algebra, geometry, the entire number system). Mathematics is also the common language of many other disciplines (science, technology, finance, social science, geography) and students should learn mathematical concepts used in those disciplines. Finally, students should connect their mathematical learning to appropriate real-world contexts.

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Standard 1

Number Sense

Students understand symbols, objects, and pictures used to represent numbers up to 100 and show an understanding of fractions.

1.1.1 **Count, read, and write whole numbers* up to 100.**

Example: Write 72 for the number "seventy-two."

1.1.2 **Count and group objects in ones and tens.**

Example: Separate a group of 34 blocks into three groups of 10 blocks and 4 single blocks.

1.1.3 **Identify the number of tens and ones in numbers less than 100.**

Example: How many tens and how many ones are in 56? Explain your answer.

1.1.4 **Name the number that is one more than or one less than any number up to 100.**

Example: Name the number one less than 78.

1.1.5 **Compare whole numbers up to 10 and arrange them in numerical order.**

Example: Arrange the numbers 5, 2, and 9 in order from greatest to least.

1.1.6 **Match the number names first, second, third, etc. with an ordered set of up to 10 items.**

Example: Point out the fifth child from the front of a line of children.

1.1.7 **Recognize when a shape is divided into congruent (matching) parts.**

Example: Given a rectangle with lines dividing it into parts, decide whether the parts are the same size.

1.1.8 **For a shape divided into 8 or fewer congruent (matching) parts, describe a shaded portion as "__ out of __ parts" and write the fraction.**

Example: Given a circle divided into 4 equal parts with 3 of the parts shaded, describe the shaded portion as "3 out of 4 parts" and write the fraction for the shaded portion.

1.1.9 **For a set of 8 or fewer objects, describe a subset as "__ out of __ parts" and write the fraction.**

Example: Given 3 red pencils and 2 blue pencils, describe the subset of red pencils as "3 out of 5 parts" and write the fraction of the pencils that are red.

1.1.10 **Represent, compare, and interpret data using pictures and picture graphs.**

Example: Use a picture graph to show how many dogs, cats, etc. your friends have. Which kind of pet appears most often? Explain your answer.

* whole numbers: 0, 1, 2, 3, etc.

Standard 2

Computation

Students demonstrate the meaning of addition and subtraction and use these operations to solve problems.

1.2.1 Show the meaning of addition (putting together, increasing) using objects.

Example: Put together 3 pencils and 5 pencils. Tell how many pencils you have and explain what you are doing.

1.2.2 Show the meaning of subtraction (taking away, comparing, finding the difference) using objects.

Example: Take away 6 blocks from a group of 10. Tell how many blocks are left and explain what you are doing.

1.2.3 Show equivalent forms of the same number (up to 20) using objects, diagrams, and numbers.

Example: Write 15 as 8 + 7, 5 + 5 + 5, 10 + 5, 15 + 0, 17 − 2, etc.

1.2.4 Demonstrate mastery of the addition facts (for totals up to 20) and the corresponding subtraction facts.

Example: Add 11 + 8, subtract 16 − 9, add 4 + 7.

1.2.5 Understand the meaning of the symbols +, −, and =.

Example: Use symbols to write the number sentence "one added to three equals four."

1.2.6 Understand the role of zero in addition and subtraction.

Example: You start with 6 eggs and then give away 6 eggs. How many eggs do you have now?

1.2.7 Understand and use the inverse relationship between addition and subtraction facts (such as 4 + 2 = 6, 6 − 2 = 4, etc.) to solve simple problems.

Example: List three other facts using addition or subtraction that are related to 3 + 5 = 8.

Standard 3

Algebra and Functions

Students use number sentences with the symbols +, −, and = to solve problems.

1.3.1 Write and solve number sentences from problem situations involving addition and subtraction.

Example: You have 3 pencils and your friend has 2 pencils. You want to know how many pencils you have altogether. Write a number sentence for this problem and use it to find the total number of pencils.

1.3.2 Create word problems that match given number sentences involving addition and subtraction.

Example: Tell a story or draw a picture for a problem that can be solved using the number sentence 3 + 6 = 9.

1.3.3 Recognize and use the relationship between addition and subtraction.

Example: Start with 8 blocks. Add 5 more blocks. How many do you have? Now take away 5 blocks. How many do you have now? Explain your answer.

1.3.4 Create and extend number patterns using addition.

Example: A number pattern begins with these numbers: 1, 3, 5, ... Tell what the next number will be and explain how you decided on that number.

Standard 4

Geometry

Students identify common geometric shapes, classify them by common attributes, and describe their relative position or their location in space.

1.4.1 **Identify, describe, compare, sort, and draw triangles, rectangles, squares, and circles.**

Example: Draw a square and a circle and write their names next to them.

1.4.2 **Identify triangles, rectangles, squares, and circles as the faces* of three-dimensional objects.**

Example: Look at a collection of solid objects and find triangles and squares on their sides.

1.4.3 **Classify and sort familiar plane and solid objects by position, shape, size, roundness, and other attributes. Explain the rule you used.**

Example: Group a collection of objects by something they have in common. Explain your grouping.

1.4.4 **Identify objects as two- or three-dimensional.**

Example: Sort various objects (cube, square, triangle, prism) into the categories "two- dimensional" and "three-dimensional". Explain your choices.

1.4.5 **Give and follow directions for finding a place or object.**

Example: Show someone how to get to the school library by making a map or diagram.

1.4.6 **Arrange and describe objects in space by position and direction: near, far, under, over, up, down, behind, in front of, next to, to the left or right of.**

Example: Name objects that are near your desk and objects that are in front of it. Explain why there may be some objects in both groups.

1.4.7 **Identify geometric shapes and structures in the environment and specify their location.**

Example: Find as many rectangles as you can in your classroom. Record the rectangles that you found by making drawings or using a camera.

* face: flat side

Standard 5

Measurement

Students learn how to measure length, as well as how to compare, order, and describe other kinds of measurement.

1.5.1 Measure the length of objects by repeating a non-standard unit or a standard unit.

Example: Measure the length of your desk in pencil-lengths.

1.5.2 Use different units to measure the length of the same object and predict whether the measure will be greater or smaller when a different unit is used.

Example: If you measure your desk with a shorter pencil, will the number of pencil-lengths be more or less? Measure the desk to find out your answer.

1.5.3 Recognize the need for a fixed unit of length.

Example: Give students different lengths of string and have them measure the width of a doorway. Talk about why their answers are different and the kinds of problems this can cause.

1.5.4 Measure and estimate the length of an object to the nearest inch and centimeter.

Example: Have some students measure the width of the doorway in inches and some measure it in centimeters. Discuss why these are better ways of measuring than using the pieces of string.

1.5.5 Compare and order objects according to area, capacity, weight, and temperature, using direct comparison or a non-standard unit.

Example: Use a scale or balance to see how many crayons weigh the same as a shoe.

1.5.6 Tell time to the nearest half-hour and relate time to events (before/after, shorter/longer).

Example: Is recess before or after lunch?

1.5.7 Identify and give the values of pennies, nickels, and dimes.

Example: How many pennies have the same value as two nickels?

Standard 6

Problem Solving

Students make decisions about how to set up a problem.

1.6.1 **Choose the approach, materials, and strategies to use in solving problems.**

Example: Solve the problem: "The number 10 can be written in different ways using addition. $10 = 4 + 6$ or $10 = 1 + 9$ ... Find how many ways you can write 10 by adding two numbers." Use blocks to set up the problem.

1.6.2 **Use tools such as objects or drawings to model problems.**

Example: In the first example, show the number 10 using addition of whole numbers by counting out ten blocks. Divide them into two piles and write a number sentence that shows the number in each pile of blocks.

Students solve problems and justify their reasoning.

1.6.3 **Explain the reasoning used and justify the procedures selected in solving a problem.**

Example: In the first example, make two piles of ten blocks; separate one block from the first pile and count the number of blocks left. Separate two blocks from the second pile and count the number left. Describe any pattern of numbers that you find.

1.6.4 **Make precise calculations and check the validity of the results in the context of the problem.**

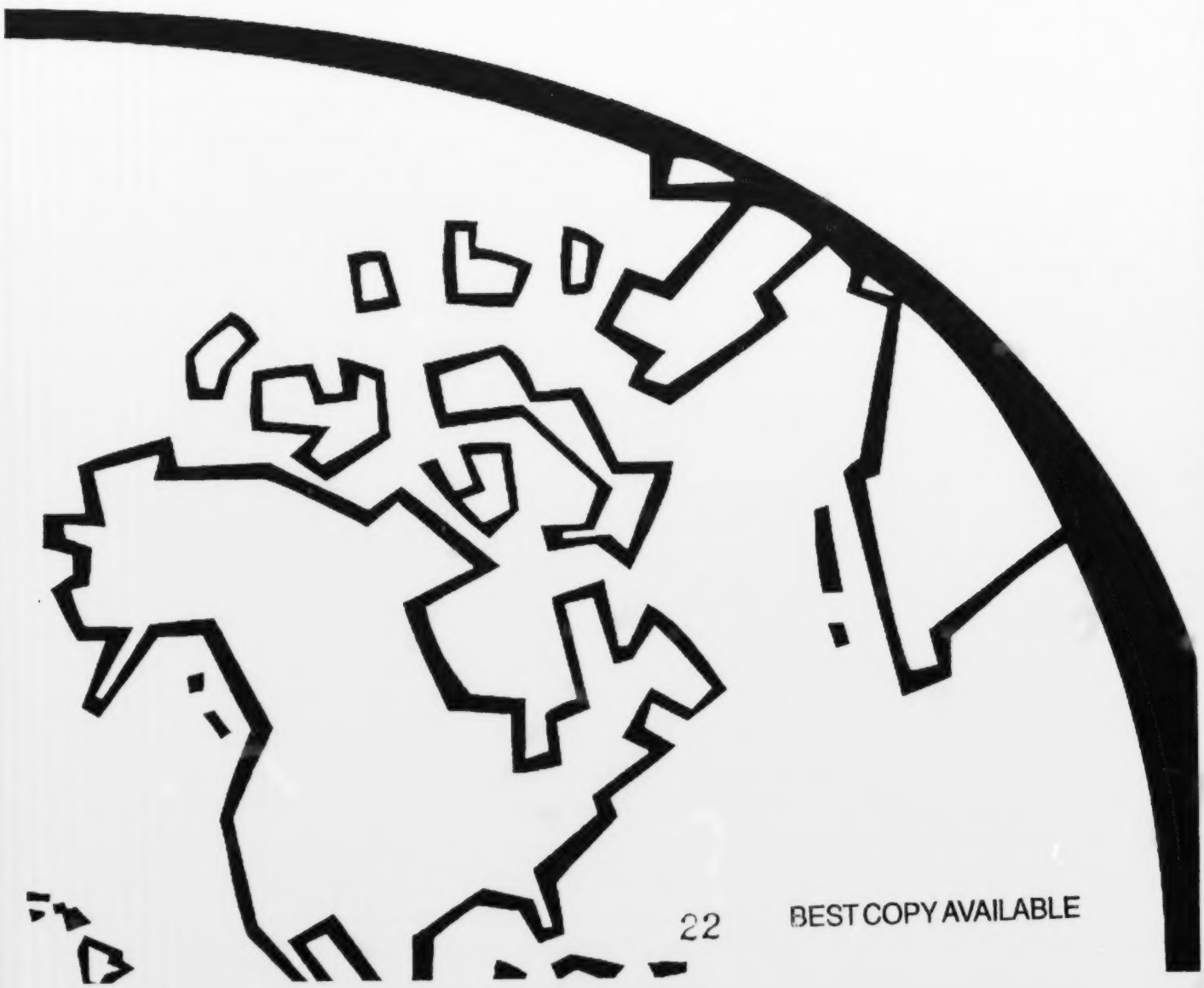
Example: In the first example, check your results by setting out 10 blocks showing $1 + 9$, another 10 blocks showing $2 + 8$, and so on. Continue to count out piles of 10 blocks to find the total number of ways that ten blocks can be separated into two piles. Describe the patterns that you find and how you know that you have found all of them.

1.6.5 **Understand and use connections between two problems.**

Example: Use the problem you have just solved to find how many ways you can write 16 by adding two numbers.

Grade 1

Science



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Science

The Indiana Academic Standards for science contain six Standards. Each Standard is described below. On the pages that follow, age-appropriate concepts are listed underneath each Standard. These ideas build a foundation for understanding the intent of each Standard.

Standard 1 — The Nature of Science and Technology

It is the union of science and technology that forms the scientific endeavor and that makes it so successful. Although each of these human enterprises has a character and history of its own, each is dependent on and reinforces the other. This first Standard draws portraits of science and technology that emphasize their roles in the scientific endeavor and reveal some of the similarities and connections between them. In order for students to truly understand the nature of science and technology, they must model the process of scientific investigation through inquiries, fieldwork, lab work, etc. Through these experiences, students will practice designing investigations and experiments, making observations, and formulating theories based on evidence.

Standard 2 — Scientific Thinking

There are certain thinking skills associated with science, mathematics, and technology that young people need to develop during their school years. These are mostly, but not exclusively, mathematical and logical skills that are essential tools for both formal and informal learning and for a lifetime of participation in society as a whole. Good communication is also essential in order to both receive and disseminate information and to understand others' ideas, as well as have one's own ideas understood. Writing, in the form of journals, essays, lab reports, procedural summaries, etc., should be an integral component of students' experiences in science.

Standard 3 — The Physical Setting

One of the grand success stories of science is the unification of the physical universe. It turns out that all natural objects, events, and processes are connected to each other. This Standard contains recommendations for basic knowledge about the overall structure of the universe and the physical principles on which it seems to run. This Standard focuses on two principle subjects: the structure of the universe and the major processes that have shaped planet Earth, and the concepts with which science describes the physical world in general – organized under the headings of *Matter and Energy* and *Forces of Nature*. In Grade 1, students learn that objects continually move and change within the environment.

Standard 4 — The Living Environment

People have long been curious about living things – how many different species there are, what they are like, how they relate to each other, and how they behave. Living organisms are made of the same components as all other matter, involve the same kinds of transformations of energy, and move using the same basic kinds of forces. Thus, all of the physical principles discussed in Standard 3 – The Physical Setting, apply to life as well as to stars, raindrops, and television sets. This Standard offers recommendations on basic knowledge about how living things function and how they interact with one another and their environment. In Grade 1, students learn that a great diversity exists among plants and animals.

Standard 5 — The Mathematical World

Mathematics is essentially a process of thinking that involves building and applying abstract, logically connected networks of ideas. These ideas often arise from the need to solve problems in science, technology, and everyday life — problems ranging from how to model certain aspects of a complex scientific problem to how to balance a checkbook.

Standard 6 — Common Themes

Some important themes pervade science, mathematics, and technology and appear over and over again, whether we are looking at ancient civilization, the human body, or a comet. These ideas transcend disciplinary boundaries and prove fruitful in explanation, in theory, in observation, and in design. A focus on *Constancy and Change* within this Standard provides students opportunities to engage in long-term and on-going laboratory and field work, and thus understand the role of change over time in studying The Physical Setting and The Living Environment.

Standard 1

The Nature of Science and Technology

Students are actively engaged in exploring how the world works. They explore, observe, count, collect, measure, compare, and ask questions. They discuss observations and use tools to seek answers and solve problems. They share their findings.*

Scientific Inquiry

1.1.1 Observe, describe, draw, and sort objects carefully to learn about them.

1.1.2 Investigate and make observations to seek answers to questions about the world, such as "In what ways do animals move?"

The Scientific Enterprise

1.1.3 Recognize that and demonstrate how people can learn much about plants and animals by observing them closely over a period of time. Recognize also that care must be taken to know the needs of living things and how to provide for them.

Technology and Science

1.1.4 Use tools, such as rulers and magnifiers, to investigate the world and make observations.

* observation: gaining information through the use of one or more of the senses, such as sight, smell, etc.

Science

Standard 2

Scientific Thinking

Students begin to find answers to their questions about the world by using measurements, estimation, and observation as well as working with materials. They communicate with others through numbers, words, and drawings.

Computation and Estimation

1.2.1 Use whole numbers*, up to 100, in counting, identifying, measuring, and describing objects and experiences.

1.2.2 Use sums and differences of single-digit numbers in investigations and judge the reasonableness of the answers.

1.2.3 Explain to other students how to go about solving numerical problems.

* whole numbers: 0, 1, 2, 3, etc.

Manipulation and Observation

1.2.4 Measure the length of objects having straight edges in inches, centimeters, or non-standard units.

1.2.5 Demonstrate that magnifiers help people see things they could not see without them.

Communication Skills

1.2.6 Describe and compare objects in terms of number, shape, texture, size, weight, color, and motion.

1.2.7 Write brief informational descriptions of a real object, person, place, or event using information from observations.

Standard 3

The Physical Setting

Students investigate, describe, and discuss their natural surroundings. They question why things move and change.

The Earth and the Processes That Shape It

1.3.1 Recognize and explain that water can be a liquid or a solid and can go back and forth from one form to the other. Investigate by observing that if water is turned into ice and then the ice is allowed to melt, the amount of water is the same as it was before freezing.

1.3.2 Investigate by observing and then describe that water left in an open container disappears, but water in a closed container does not disappear.

Matter and Energy

1.3.3 Investigate by observing and also measuring that the sun warms the land, air, and water.

Forces of Nature

1.3.4 Investigate by observing and then describe how things move in many different ways, such as straight, zigzag, round-and-round, and back-and-forth.

1.3.5 Recognize that and demonstrate how things near Earth fall to the ground unless something holds them up.

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Standard 4

The Living Environment

Students ask questions about a variety of living things and everyday events that can be answered through observations. They become aware of plant and animal interaction. They consider things and processes that plants and animals need to stay alive.

Diversity of Life

1.4.1 Identify when stories give attributes to plants and animals, such as the ability to speak, that they really do not have.

1.4.2 Observe and describe that there can be differences, such as size or markings, among the individuals within one kind of plant or animal group.

Interdependence of Life

1.4.3 Observe and explain that animals eat plants or other animals for food.

1.4.4 Explain that most living things need water, food, and air.

Standard 5

The Mathematical World

Students apply mathematics in scientific contexts. They begin to use numbers for computing, estimating, naming, measuring, and communicating specific information. They make picture graphs and recognize patterns.

Numbers

1.5.1 Use numbers, up to 10, to place objects in order, such as first, second, and third, and to name them, such as bus numbers or phone numbers.

1.5.2 Make and use simple picture graphs to tell about observations.

Shapes and Symbolic Relationships

1.5.3 Observe and describe similar patterns, such as shapes, designs, and events that may show up in nature, such as honeycombs, sunflowers, or shells. See similar patterns in the things people make, such as quilts, baskets, or pottery.

Standard 6

Common Themes

Students begin to understand how things are similar and how they are different. They look for what changes and what does not change and make comparisons.

Models and Scale

1.6.1 Observe and describe that models, such as toys, are like the real things in some ways but different in others.

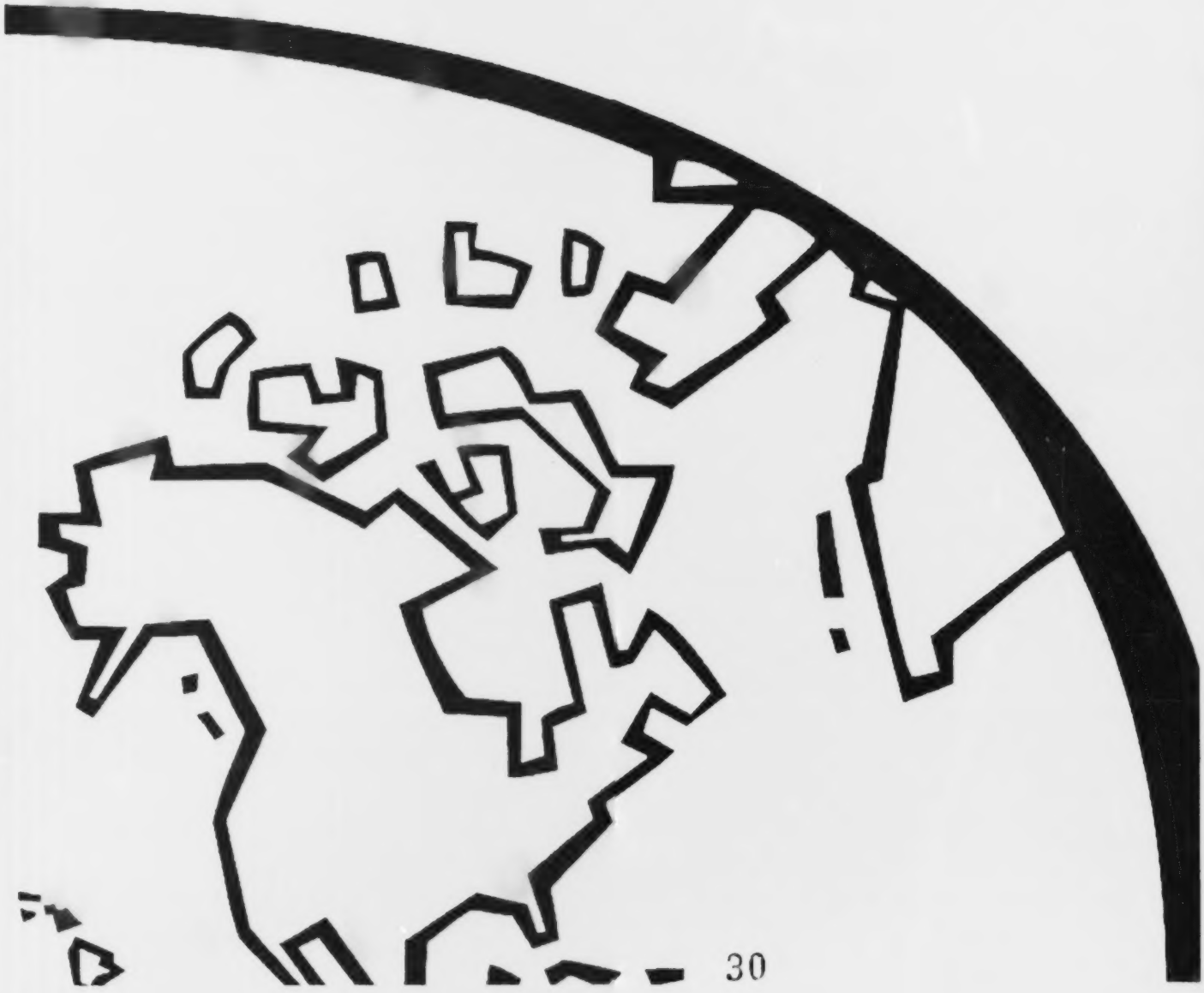
Constancy and Change

1.6.2 Observe that and describe how certain things change in some ways and stay the same in others, such as in their color, size, and weight.

NOTES

Grade 1

Social Studies



Social Studies

The Home, School, and Nearby Environments

Students in Grade 1 examine changes in their own communities over time and explore the way people live and work together. They begin to understand their rights and responsibilities as citizens as they interact with home, school, and nearby environments.

The K – 8 Indiana Academic Standards for social studies are organized around five content areas. The content area Standards and the types of learning experiences they provide to students in Grade 1 are described below. On the pages that follow, age-appropriate concepts are listed underneath each Standard. Skills for thinking, inquiry, and participation in a democratic society are integrated throughout. Specific terms are defined and examples are provided when necessary.

Standard 1 — History

Students will identify continuity and change in the different environments around them, including school and neighborhood communities, and identify individuals, events, and symbols that are important to our country.

Standard 2 — Civics and Government

Students will explain the meaning of government; explain why rules and laws are needed in the school and community; identify individual rights and responsibilities; and use a variety of sources to learn about the functions of government and roles of citizens.

Standard 3 — Geography

Students will identify the basic characteristics of maps and globes and explain basic facts concerning the relationship of the sun to daily and seasonal weather. They will identify selected geographic characteristics of their home, school, and neighborhood.

Standard 4 — Economics

Students will explain how people in the school and community use goods and services and make choices as both producers and consumers.

Standard 5 — Individuals, Society, and Culture

Students will understand that they are individuals who interact with other individuals and groups; take responsibility for resolving conflicts and working respectfully with others; and examine the ways that similarities and differences in customs, celebrations, recreation, and the arts benefit the community.

Standard 1

History

Students will identify continuity and change in the different environments around them, including school and neighborhood communities, and identify individuals, events, and symbols that are important to our country.

Historical Knowledge

1.1.1 Identify examples of things that have changed and things that have remained the same as students compare their lives with the lives of family members, such as parents and grandparents.

Example: People today use different kinds of technology, such as computers, in comparison to the types of technology people used in the past.

1.1.2 Compare past and present similarities and differences in daily life by using biographies, oral histories, and folklore.

Example: Aspects of daily life might include roles of men, women, and children, styles of dress, work within and outside the home, popular games, transportation, schooling, and manners.

1.1.3 Identify American songs and symbols.

Example: Symbols – The United States Flag, the Bald Eagle, and the Statue of Liberty; Songs – "The Star-Spangled Banner," "America the Beautiful."

1.1.4 Discuss how the Pledge of Allegiance is a promise to be loyal to the United States.

1.1.5 Identify people and events observed in national celebrations and holidays.

Example: Celebrations and holidays, such as Thanksgiving, the Reverend Martin Luther King, Jr. Day, Presidents' Day, Independence Day, and Veterans' Day.

Chronological Thinking

1.1.6 Use terms related to time to order events sequentially that have occurred in the school.

Example: Identify and order school events using the terms "past" and "present;" discuss national holidays and historical events associated with the holidays.

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Standard 2

Civics and Government

Students will explain the meaning of government, explain why rules and laws are needed in the school and community, identify individual rights and responsibilities, and use a variety of sources to learn about the functions of government and roles of citizens.

Foundations of Government

1.2.1 Give examples of people who have the authority* to make and enforce rules.

Example: Parents, teachers, and principals.

1.2.2 Identify rights that people have and identify the responsibilities that accompany these rights.

Example: People have the right to own property, such as a house, but this means taking responsibility for the maintenance of the house.

* authority: power that people have the right to use because of custom or law

Functions of Government

1.2.3 Define and give examples of rules and laws.

1.2.4 Identify why rules and laws exist and describe the consequences of not having rules and laws.

Example: Rules and laws exist to establish order and security and to protect rights.

Roles of Citizens

1.2.5 Suggest ways that students' actions can contribute to the common good of the community.

Example: Students help to keep the classroom and school clean by properly disposing of trash.

1.2.6 Identify civic virtues that are needed to be a good citizen.

Example: Fairness, honesty, compassion, responsibility.

Standard 3

Geography

Students will identify the basic characteristics of maps and globes and explain basic facts concerning the relationship of the sun to daily and seasonal weather. They will identify selected geographic characteristics of their home, school, and neighborhood.

The World in Spatial Terms

1.3.1 Explain the basic difference between a map* and a globe*.

1.3.2 Identify the cardinal directions (north, south, east, west) on maps and globes.

* map: a map is flat and can represent only a part of Earth's surface
* globe: a globe is round and can show the entire Earth

Places and Regions

1.3.3 Identify the relative locations* of places in the school setting.

Example: The relative location of the school might be described as "across the road from the fire station" or "near the river."

1.3.4 Identify physical features* and human features* in the geography of school and community.

* relative location: the location of a place in relation to another place or places
* physical features: geographic features that occur in nature, such as land and water forms, natural vegetation, and wildlife
* human features: features created by humans, such as farms, cities, buildings, and roads

Physical Systems

1.3.5 Explain the effect of seasonal changes on plants, animals, and people.

Example: Some animals hibernate in winter; people may wear lighter-weight clothing in summer; most plants exhibit new growth in spring.

1.3.6 Observe and record the physical processes related to weather on a daily basis.

Example: Rainy, sunny, cloudy, warm, cold.

Human Systems

1.3.7 Draw simple maps that show how land is used in the school and local community.

Example: Draw maps of the school setting that show the playground and different parts of the school building; make maps that show where people live and work.

Environment and Society

1.3.8 Give examples of natural resources, such as water, trees, plants, and soil, and describe how people in the school and community use these resources.

Standard 4

Economics

Students will explain how people in the school and community use goods and services and make choices as both producers and consumers.

1.4.1 Identify goods* that people use.

1.4.2 Identify services* that people do for each other.

1.4.3 Compare and contrast different jobs people do to earn income.

1.4.4 Describe how people in the school and community are both producers* and consumers*.

1.4.5 Explain that people have to make choices about goods and services because of scarcity*.

1.4.6 Explain that people exchange goods and services to get the things they want.

* goods: objects, such as food or a toy, that can satisfy people's wants
* services: actions that someone does for someone else, such as dental care or trash removal
* producers: people who provide goods or services
* consumers: people who use goods or services
* scarcity: the idea that resources are limited in relation to people's wants

Standard 5

Individuals, Society, and Culture

Students will understand that they are individuals who interact with other individuals and groups; take responsibility for resolving conflicts and working respectfully with others; and examine the ways that similarities and differences in customs, celebrations, recreation, and the arts benefit the community.

1.5.1 Identify one's own individual talents, interests, and hobbies, as well as the talents and interests of others.

1.5.2 Identify groups to which people belong.

Example: Boy Scouts, Girl Scouts, clubs, musical groups.

1.5.3 Give examples of how people show concern, respect each other, behave responsibly in a group, and resolve differences peacefully.

1.5.4 Demonstrate the importance of treating others as they would wish to be treated and practice ways of resolving differences peacefully.

1.5.5 Compare similarities and differences in customs, foods, play, recreation, and celebrations of families in the community.

NOTES

Questions?

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